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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,682	08/16/2006	Junji Nishida	2271/76689	9912

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COOPER & DUNHAM, LLP  
30 Rockefeller Plaza  
20th Floor  
NEW YORK, NY 10112

EXAMINER
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FANTU, YALKEW

ART UNIT	PAPER NUMBER
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2838

MAIL DATE	DELIVERY MODE
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04/02/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/589,682	<b>Applicant(s)</b> NISHIDA, JUNJI	
	<b>Examiner</b> YALKEW FANTU	<b>Art Unit</b> 2838	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 January 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01/05/2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

The corrected drawing sheet in compliance with 37 CFR 1.121(d) is received on 1/5/2009, and examiner appreciates applicant's correction of the drawing (Fig. 7) by labeling as "Prior Art" on timely manner.

Claims 1-12 are pending.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hisatoshi (JP 10-225001) in view of Ito et al (US 5,825,155).

With respect to claims 1 and 2 Hisatoshi discloses a battery connection detection circuit for detecting whether a secondary battery is operable and whether the secondary battery is reliably connected to a charging device (fig.1, 1) comprising: a current supplying circuit configured to supply a current (fig. 1, elements 1 and 3) to the secondary battery (fig. 1, 10); a constant voltage circuit (fig. 1, elements 3 and 6) configured to control the current from the current supplying circuit so that a voltage on a connection terminal (terminals connection 11 and 2) for connecting the secondary battery is constant (par. 0008); a constant current circuit configured to control the current from the current supplying circuit (fig. 1, elements 1 and 3) so that the current supplied to the secondary battery (10) is constant (par. 0008).

But, Hisatoshi does not disclose a determination circuit configured to determine operation states of the constant voltage circuit and the constant current circuit.

Ito et al (hereinafter, Ito) discloses said determination circuit (fig. 38, 347) concurrently determining whether the secondary battery is operable and whether the secondary battery is reliably connected to the charging device according to the operation states of the constant voltage circuit and the constant current circuit (fig. 39; col. 10, lines 50-60).

Hisatoshi and Ito are analogous arts because they are from the same field of endeavor namely charging System and charge Discharge Control.

At the time of the invention it would have been obvious to a person having ordinary skill in the art to provide a determination circuit that determines connection of charging device to the rechargeable battery according to the operation stases of the constant current and constant voltage circuit as taught by Ito to the charging system of Hisatoshi to ensure proper connection of the battery-charger system according to operation states of the current and voltage circuits.

The suggestion for doing would have been that the use of determination circuit, such as the microcomputer 60 control the OFF and ON switch 55 in the charging process performing a constant current and constant voltage operation. When only constant voltage control is performed, a current infinitely flows until the voltage becomes constant, thereby breaking the battery and the circuit (col. 10, lines 50-64).

Therefore it would have been obvious to combine Hisatoshi and Ito for the benefit of charging system with controlled current and voltage in order to avoid a possible

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damage to the rechargeable battery and charging circuit to obtain the invention as specified in claims 1 and 2.

With respect to claim 3, Hisatoshi discloses the battery connection detection circuit as claimed in claim 1, wherein when it is determined that the voltage on the connection terminal T1 is lower than a predetermined value from the operation State of the constant current circuit (par. 0008).

Regarding claims 4, 5, 6, 9 and 12, Hisatoshi discloses battery connection detection circuit as in claim 1, wherein the current supplying circuit (fig. 1, elements 1 and 3); the constant voltage circuit includes a voltage detection circuit that detects the voltage on the connection terminal T1 (fig.1, elements 8, 22 and 11) and outputs a voltage  $V_{d1}$  proportional to the detected voltage (fig. 1,  $V_{out}$ ); and Ito discloses a first calculation amplification circuit (fig. 8, 58) into which the output voltage  $V_{d1}$  (voltage through 56) from the voltage detection circuit and a first reference voltage  $V_{s1}$  (input to 58 from dc/dc) are input, and a first control transistor (fig. 32, 315) whose operation is controlled according to an output signal CV from the first calculation amplification circuit (fig. 32, 309); the constant current Circuit includes a current detection circuit that converts the current supplied by the current supplying circuit into a voltage and outputs the voltage (fig. 8, 57 that includes DC/DC circuit), a second calculation amplification circuit (fig. 32, 329) into which the output voltage from the current detection circuit (from 327) and a second reference voltage  $V_{s2}$  are input ( $V_{ref}$ ), and a second control transistor whose operation is controlled according to an output signal CC from the second calculation amplification circuit (fig. 32, 315); and the current control transistor

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controls the current supplied to the secondary battery according to operations of the first control transistor and the second control transistor (fig. 32, 335 SW could be a transistor and 337-controller).

Regarding claims 7 and 8, Hisatoshi discloses battery connection detection circuit wherein the current control transistor includes a MOS transistor (par. 0020), and Ito discloses that the current control transistor includes a bipolar transistor (see Fig. 80, elements 191 and 193).

With respect to claims 10 and 11, Hisatoshi discloses battery connection detection circuit wherein the current supplying circuit, the constant voltage circuit, the constant current circuit, and the determination, and the load circuit are integrated in one Integrated Circuit (IC) (fig. 1, elements 6,8,9 and 10 are integrated in one circuit).

### ***Response to Arguments***

Applicant's arguments filed on 01/05/2009 have been fully considered but ineffective to overcome the combined references of Hisatoshi and Ito. (See rejection above).

Applicant argues in different pages of the remark that neither of the references disclose "... concurrently determine operation states of both a constant voltage circuit and a constant current circuit ..."

As described in the above rejection, Ito discloses determination circuit (fig. 38, 347) concurrently determining operation states of the constant voltage circuit and the constant current circuit (fig. 39; col. 10, lines 50-60). Concurrent operation is one that occurs simultaneously. Here the gradual transformation of constant current to constant

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voltage occurs not abruptly, but with a gradual reduction in constant current to a gradual progress of voltage implying that both are occurring at the same time. “ ... When only constant voltage control is performed, a current infinitely flow until the voltage becomes constant, thereby breaking the battery and circuit (see reference Ito, col. 11, lines 55-58). The charge current gradually reduced, and the constant voltage charge operation continues ... (col. 11, lines 4-6). The graph of Fig. 9 depicts a concurrent occurrence of a constant current and a constant voltage.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YALKEW FANTU whose telephone number is (571)272-8928. The examiner can normally be reached on M - F: 7- 4.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm E. Ullah can be reached on 571-272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Adolf Berhane/  
Adolf Berhane  
Primary Examiner  
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